Mueller - Champion of Victoria's Giant trees

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In the year 1895, botanist A. D. Hardy (Hardy 1921) accompanied by the famous photographer J. M. Lindt led a party of people to the location of an enormous specimen of Australia's tallest tree, the Mountain Ash *Eucalyptus regnans*, on Mount Monda near Healesville. The party consisted mainly of members of the Geographical Society, and world famous botanist Baron Ferdinand von Mueller. Hardy respectfully named it the 'Mueller Tree' in honour of his colleague, even though 'the Baron' had wandered off on his own private botanical excursion and was not present to witness the occasion.

This magnificent tree was later measured accurately - 64 feet (19.7 metres) circumference at 6 feet (1.8 metres) above ground level, and height of 307 feet (94.5 metres). In the 1930s this same tree was 'rediscovered' by Mr Harold Furmston, an employee of the Melbourne and Metropolitan Board of Works, and was renamed the 'Furmston Tree' by the Healesville Progress Association. The same tree is still standing and very much alive today, although now reduced in height by decay and wind damage. Nevertheless, it exudes an atmosphere of mystery and silent dignity, reflecting its great age, immense proportions and moss-covered convolutions of its buttressed root system, thus remaining a fitting tribute to the great botanist after whom it was originally named.

In his work on the identification and classification of the flora of Victoria, Mueller made a particular study of the Mountain Ash and was responsible for naming and classifying the species. In his 'Second Census of Australian Plants' (Mueller 1870), he gives the following description:

> '*Eucalyptus amygdalina*, Lindl. - In our sheltered springy (containing water springs) forest glens attaining not rarely a height of over 400 feet, there forming a smooth stem and broad leaves, producing a foliage different to the ordinary state of Euc. amygdalina as occurs in more open country. This species or variety, which might be called *Euc. regnans*, represents the loftiest tree in the British territory, and ranks next to the *Sequoia Wellingtonia* in size anywhere on the globe.'

Later events persuaded him to revise this size ranking and to claim giant specimens of the Mountain Ash to be the tallest trees in the world. Mueller was an unabashed enthusiast for the giant Mountain Ash, but he was also acutely aware that they were a rapidly disappearing feature of the Australian landscape. The plight of the forests in general was already a cause for concern in the late 1800s.

From the earliest days of European settlement in Victoria, the forests were exploited with unprecedented energy and indecent haste. This was particularly true of those tall eucalypt forests that clothed the hills in close proximity to Melbourne, such as the Dandenongs and Kinglake Ranges which are now known collectively as the 'Central Highlands'. The early explorers commented on the extraordinary height of the 'tall gums' that grew in these areas, but very few had the botanical training or interest to realise the significance of what they were observing. The Mountain Ash *Eucalyptus regnans*, which is the tallest of the eucalypts, predominates throughout most of this region, and until the end of the 19th century, the tallest specimens in specific locations providing ideal conditions, may well have been the tallest trees in the world. However, this was not recognised until it was too late, and the exploitation proceeded unrelentingly, with very little consideration that the forests were being robbed of their crowning glory, the giants of the old growth forest.

The first wave of destruction resulted from the activities of the 'paling splitters' who scoured 'the scrub' to find the tallest and straightest timber, that, once felled with axe and cross-cut saw, would split cleanly and easily, yielding huge volumes of palings and shingles. These were items

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desperately needed and essential to the development of housing in the new colony. It was lucrative business for these forerunners of the timber industry and a popular occupation amongst pioneers.

This rapidly became a competitive business, and the 'splitters' searched far and wide for the biggest trees that would yield the highest returns for the hard work of cutting them down. Thus it was that stories began to filter through to the community about the huge size of some of the trees.

There was precious little interest, and the scantest of records from the early 1800s, but a few scientists began to take reports seriously of exceptionally tall trees. The appointment of Mueller as State Botanist of Victoria in 1853, and later as Director of the Botanic Gardens, placed him in the ideal position to review reports of these enormous trees and he was probably the first to fully recognise their majesty and botanical significance. He enthusiastically embraced the process of documenting evidence of the colossal size of the largest specimens of eucalypts. Mueller soon perceived that a precarious situation had arisen. He was receiving sawmillers and surveyors accounts of giant Mountain Ash of immense proportions, while at the same time the universal preoccupation of the timber workers was to seek out and fell the largest trees they could find. Consequently, it was evident that a wonder of nature was being destroyed at the same time that its existence was beginning to be validated.

In 1866 Mueller (Mueller 1866-7) wrote:-

> 'In a philosophical contemplation of the nature of any country and the history of its creation, our attention is likely to be in the first instance engaged in a survey of the constituents of its pristine forests. Greatly is to be feared that in ages hence, when much of the woods will have sunk under ruthless axes, the deductions of advanced knowledge thereon will have to be based solely on evidence early placed on record.
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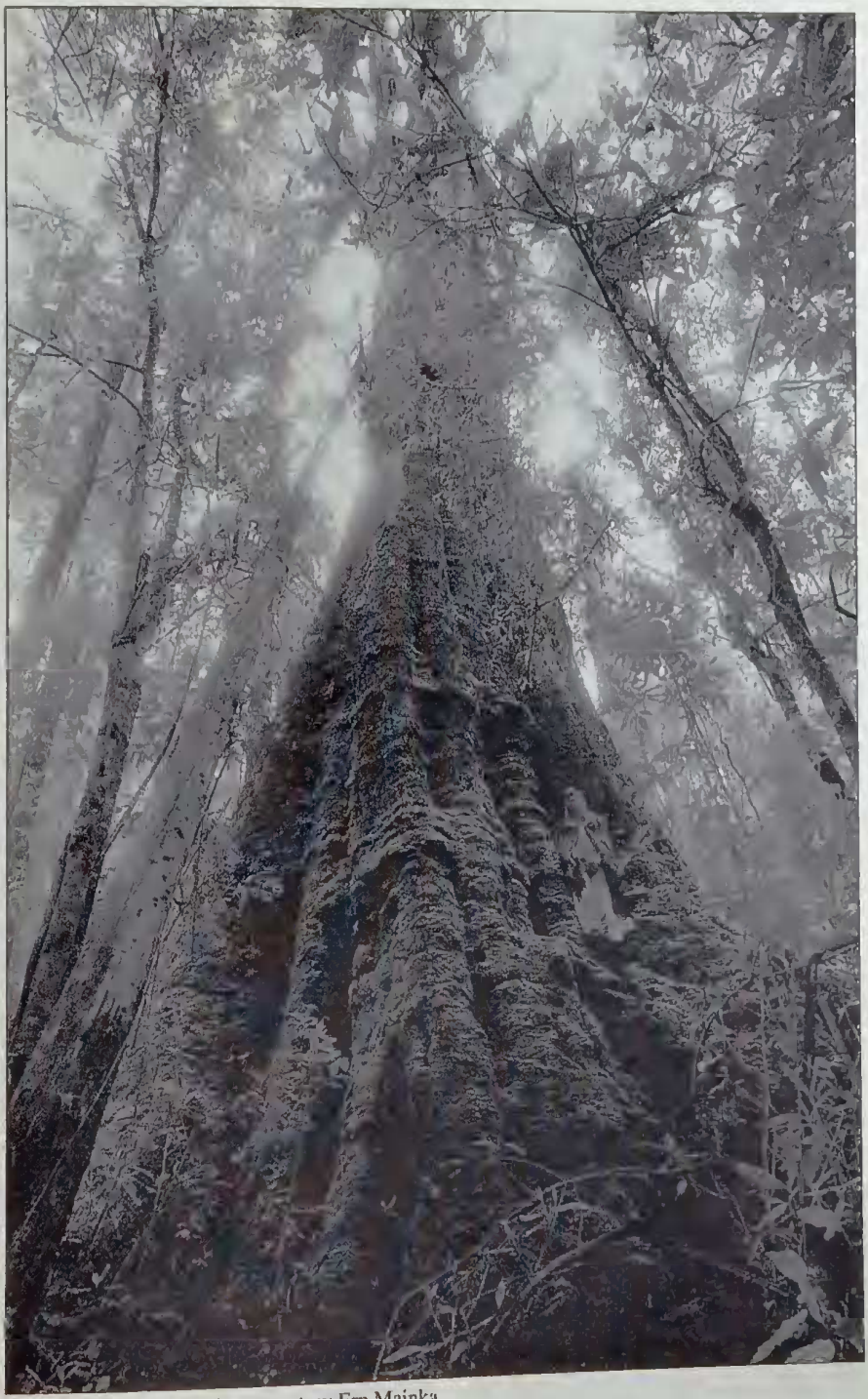
> The marvellous height of some of the Australian, and especially Victorian trees, has become the subject of closer investigation since of late, particularly through the miners' tracks, easier access has been afforded to the back-gullies of our mountain system. Some astounding data, supported by actual measurements are now on record. The highest tree previously known was a Karri (*Eucalyptus colossea*) measured by Mr Pemberton Walcott in one of the delightful glens of the Warren River of Western Australia, where it rises to approximately 400 feet high. Into the hollow trunk of this Karri three riders with an additional packhorse, could enter and turn in it without dismounting. On the desire of the writer of these pages, Mr D. Boyle measured a fallen tree of *Eucalyptus amygdalina* (now known as *E. regnans* - mountain ash) in the deep recesses of Dandenong, and obtained for it the length of 420 feet, with proportions indicated in a design of a monumental structure placed in the exhibition; while Mr G. Clein took the measurement of a Eucalyptus on the Blacks' Spur, 10 miles from Healesville, 480 feet high!'

This information is highly significant, coming from the botanist who classified *Eucalyptus regnans* and spent so much time studying and documenting these magnificent trees. It should be noted that Mueller was a meticulous and indefatigable scientist whose collecting expeditions traversed the length and breadth of Victoria. By 1868, his collections in the Herbarium reportedly exceeded 300,000 specimens, many of which were new to science (Willis and Cohn 1993). He became deeply concerned about the fate of the few remaining giant examples of Mountain Ash in our forests, and sought to highlight their importance by comparing them to the giant sequoias of California. As the evidence accumulated, he came to believe that the Mountain Ash, particularly those growing in parts of Victoria, were in fact the tallest trees in the world, sometimes attaining the astonishing height of 500 feet (154 metres), and thus exceeding the greatest height ever claimed for the giant sequoias by at least 100 feet (around 30 metres). This assertion was well founded, being based primarily on professional surveyors reports, although anecdotal evidence no

`Mueller' Tree , early 1900's.



'Mueller' Tree today. Photo courtesy Ern Mainka.

doubt played a part. Sometimes standing trees were measured using a theodolite or clinometer, but even more convincingly, some enormous specimens were accurately measured by 'tape line' on the ground, where they had either fallen by chance or been felled by the axeman.

Contemplating an explanation for the superior size of Mountain Ash found in Victoria, compared to interstate locations, Mueller wrote (Mueller 1866-7):

> 'The enormous height attained by not isolated, but vast masses of our timber trees in the rich diluvial deposits of sheltered depressions within Victorian ranges, finds its principal explanation, perhaps in the circumstances that the richness of the soil is combined with the humid geniality of the climate, never sinking to the colder temperature of Tasmania, nor rising to a warmth less favourable to the strong development of these trees in New South Wales.'

In other words, Victoria had the unique combination of climatic and environmental factors that enabled the forest giants to reach their full potential after centuries of development. Largely because of Mueller's dedicated investigative work, considerable efforts were made to find and record the largest surviving specimens in the late 1800s. Surveyors, forestry workers and timber mill operators measured and recorded the largest trees they encountered and submitted their records to the Herbarium. Several prominent photographers travelled far and wide to secure photographic records of the most impressive specimens they could find. Nicholas Caire (Caire 1905), in particular, became devoted to the quest for images of the rapidly disappearing giants, to confirm their existence for future generations. Unfortunately the extraordinary giants amongst the Mountain Ash were the first to be eliminated.

It is not surprising that claims of *Eucalyptus regnans* attaining such stupendous heights were vigorously challenged from various quarters. For instance, in 1888 a reward of £600 was offered to anyone who could prove the existence of a tree 400 feet or more in height. The desired affirmative result was intended to be highlighted at the Centennial International Exhibition in Melbourne. The size claimed had to be validated by a qualified surveyor, but this proved to be a tall order in more ways than one. The fact that strenuous efforts to produce the evidence that would reap the reward failed, is often quoted as evidence that Mueller's claims were invalid. In fact a professional photographer, J. Duncan Pierce and a surveyor, C. R. Cunningham were employed to photograph and measure as many of the known giant trees as possible before the 1888 exhibition. The largest tree they could find was 'The Neerim Giant' which stood 326 feet high (100 metres) and 48 feet (14.8 metres) girth at chest height. Located on a spur of Mt Baw Baw, this was undeniably a huge tree as the photographic records show, but it was still 75 feet short of the desired 400 foot mark. However, E. J. Dowey (Hardy 1923), the timber cutter who led the party to this tree, reported that freezing conditions and the poor health of Pierce, meant that rather than search out the largest tree in the area, they had merely located the closest large specimen and measured it alone before returning quickly to civilisation. He also asserted that he had found and cut down much larger trees in the same area some time afterwards! The record of the search, in the lead up to the 1888 exhibition can be found in 'Giant Trees Of Australia,' (Anon 1888), the superb compilation of photographs with minimal text that resulted from the efforts of Pierce and Cunningham.

It is easy to criticise an assertion that stretches the limits of our credulity or imagination, but there was little justification for claims that Mueller was prone to exaggerate. He was not alone in reporting the extraordinary height of Victoria's Mountain Ash. Botanist A. D. Hardy also documented accounts of giant examples of the species, sometimes without embarking on exhaustive analysis of the reports (Hardy 1921). Most of the tallest trees recorded by Mueller were measured by surveyors, and although there were some notable inconsistencies, there is no justification for doubting the veracity of all

reports. None the less, criticisms did arise, and one polite detractor was the State Botanist of New South Wales, J. H. Maiden who took the more conservative view point. In *The Forest Flora of New South Wales*, No. 72, (Maiden 1904-25), he wrote:

> *Eucalyptus regnans* F. V. M. 'The Giant Gum Tree
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> A large tree, the largest indeed in Australia, though inferior in size to the Redwood, *Sequoia sempervirens* and the 'Big Tree' *Sequoia Wellingtonia* of Western America. Trees about 300 feet high are known in Victoria..'

Later in the same publication he referred to Mueller as follows:

> 'The greatest claims to possess the tallest trees of the world have been made on behalf of Victoria, most of them from Gippsland. In 1862 Mueller wrote to the Seaman's Journal of Botany that Mr. D. Boyle, of Nunawading, near Melbourne, has measured a fallen tree in the recesses of Dandenong and found it to be 420 feet.'

Surveyor Boyle was apparently discredited at a later date after a tree he measured at 466 feet was allegedly remeasured at 219 feet. This might have been good fuel for the sceptics and reflected badly on Mueller, but it defies comprehension that a qualified surveyor could produce an error of more than 100 percent in a simple measurement. Even an amateur could expect to get within 10 percent with a clinometer. Perhaps they remeasured the wrong tree? Maiden sought to discredit Mueller by highlighting conflicting claims of extraordinary heights which appeared to relate to the same trees. Obviously disagreeing with Mueller, he rather disparagingly quoted him as saying (Mueller 1885):

> 'the tallest tree of the globe, surpassing even the renowned California Sequoia and Wellington pines in height, reaching to 400 feet and even more.'

Maiden called for constructive action to settle the argument (Maiden 1904-25.): '*It will be best, if possible, to take a standing tree, measured by a surveyor, and we should have at least two independent measurements.*' A sound proposal, but by the early 1900s it was apparently already too late. He expressed doubts about the size claimed for the 'Neerim Giant', 326 feet high, and made dismissive comments about an even bigger specimen that came to be known as the 'Thorpdale Tree,' measured by Government certified surveyor George Cornthwaite in 1880. This giant from South Gippsland was measured with a theodolite at 370 feet high, and then shortly after was cut down by Cornthwaite's pastoralist brother and more accurately remeasured with a tape line on the ground. The result was 375 feet confirmed. This was reported in *The Victorian Naturalist*, July 1918. Currently this vanquished monarch is remembered with a pathetic pole, topped with a sign reading 'THE WORLD'S TALLEST TREE.' This tree has been referred to in the *Guinness Book of Records* (erroneously) as the tallest hardwood tree in the world at 115 metres (375 feet) high. If it was still standing, it would be at least 4 metres higher than the largest Redwood still standing in California. The tallest currently accepted record of a Californian Redwood *Sequoia sempervirens* is 368 feet (113 metres) and 66 feet (20 metres) girth at chest height. This fine tree fell during a storm in 1992.

Significantly, there was a giant Mountain Ash produced for the 1888 Exhibition in Melbourne, 'obtained through the kindness of Mr S. Willis of Prahran,' (Hardy 1912, 1921) and its enormous butt was displayed for all to see. The tree was provided by a sawmiller from Menzies Creek, and was claimed to have been measured with a tape line by the mill owner prior to being sectioned. It was reported to be 400 feet long, but was not confirmed by a licensed surveyor, so it did not warrant payment of the £600 reward. However the butt was laboriously sectioned into thirteen pieces, each approximately fifteen feet high, transported to the Exhibition Building grounds and reassembled into a stunning exhibit. It was reported to be 72 feet (22 metres) in circumference at ground level.

Despite the opposition to the notion that Victoria once harboured the tallest trees on earth, 'the Baron' was finally vindicated. One of his contemporaries by the

name of William Ferguson, who was a licensed surveyor and in fact the 'Inspector of State Forests of Victoria', was assigned the task of assessing the timber reserves of the Watts River catchment near Healesville and to report on its suitability for proclamation as a State Forest. Ferguson investigated *'areas that had not been penetrated by the timber splitter or the wood cutter.'*, and reported to Mr Clement Hodgkinson, Assistant Commissioner of State Forests in 1872, (Simpfendorfer 1982) that....

'Some places, where the trees are fewer and at a lower altitude, the timber is much larger in diameter, averaging from 6 to 10 feet and frequently trees to 15 feet in diameter are met with on alluvial flats near the river. These trees average about ten per acre; their size, sometimes, is enormous. Many of the trees that have fallen through decay and by bush fires measure 350 feet in length, with girth in proportion. In one instance I measured with the tape line one huge specimen that lay prostrate across a tributary of the Watts and found it to be **435 feet from its roots to the top of its trunk. At 5 feet from the ground it measures 18 feet in diameter. At the extreme end where it has broken in its fall, it (the trunk) is 3 feet in diameter. This tree has been much burnt by fire, and I fully believe that before it fell it must have been more than 500 feet high.** As it now lies it forms a complete bridge across a deep ravine.'

This, the 'Ferguson Tree,' may well have been the tallest tree ever accurately recorded by mankind. Ferguson's report was secreted away in Government files for many years and apparently never came to the notice of Mueller. This record has recently been investigated by Dr A. C. Carder, a retired forester from Canada who has investigated tall tree records world wide, and it is currently listed in the *Guinness Book of Records*. The biggest girth ever recorded in Australia was the 'Bulga Stump' a Mountain Ash from the Tarra Bulga region of South Gippsland. It measured 111 feet (34 metres) girth at chest height, and its hollow interior could 'comfortably' house 11 horses.

The `Bulga Stump'. The largest girth ever measured in Australia.

Photographed in 1888, it was already dead and broken off, so we can only speculate how tall it may have been in its prime, and unfortunately, it was burned soon after.

On balance, it appears that official efforts to confirm the existence of Mountain Ash upwards of 400 feet tall, in the latter part of the 19th century, were poorly executed and perhaps 20 to 30 years too late. The evidence shows that Mueller was correct in his assertions and well aware of the environmental factors that enabled Mountain Ash to reach exceptional heights in Victoria. He and some of his contemporaries were of the opinion that most of the great trees had already been destroyed by the paling splitters, or by the fires that followed European settlement, by as early as 1860 (Mueller 1885). Subsequent timber harvesting practices and policies gave neither recognition nor protection to the tallest trees in the world. Even those giants that may have survived in protected water catchments were probably destroyed by bushfires, which increased in frequency and intensity as a consequence of human activities and modifications to the environment. Consequently, the most magnificent botanical feature of Australia's wilderness was effectively lost by the turn of the century. The present status of that formerly ideal forest ecosystem is now so greatly modified that the grandeur of the past may never be seen again. Thankfully, the published notes of Mueller and a few other dedicated individuals were preserved to inform us of the extraordinary tall trees that once characterised Victoria's Mountain Ash forests.

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FOREST CONSERVATION

I regard the forest as an heritage given to us by nature, not for spoil or to devastate, but to be wisely used, reverently honoured, and carefully maintained. I regard the forests as a gift, instrusted [sic] to any of us only for transient care during a short space of time, to be surrendered to posterity again as an unimpaired property, with increased riches and augmented blessings, to pass as a sacred patrimony from generation to generation.

F. Mueller (1871).

'Forest culture in its relation to industrial pursuits'. (Samuel Mullen:Melbourne).

Tabulation Of The World's Largest Trees

Past Records - Mountain Ash *Eucalyptus regnans*

Name	Location	Height	Girth	Measurement Details
Ferguson Tree	Healesville	Over 500ft	56.5ft	Measured by Surveyor William (154m +) (17.5m) Ferguson. Fallen tree 435 feet to top (broken by fall). 3 feet thick at break. Recorded in 1872
Not named	Mt Baw Baw	470 ft	N.A.	Measured by Surveyor (145m) G.W.Robinson. Prior to 1889
Centennial Exhibition Tree	Menzies Creek	400 ft (123 m)	72 ft (22 m)	Measured by sawmiller after felling. Prior to 1888
Not named	Dandenongs	392 ft (120 m)	N. A.	Fallen tree measured by Surveyor David Boyle in 1862. He added 30 ft for its broken top giving a total height of 420 ft.
Thorpdale tree	Thorpdale (South Gippsland)	375 ft (115 m)	N.A.	Accurately measured by surveyor, G. Cornthwaite. Felled, 1880
Gerraty Tree	Toorongo	348 ft	N. A.	Fallen tree measured by Inspector Forest, Noojee (107 m) of Forests, F. G. Gerraty, 1939
Olongolah Tree	Beech Forest	347 ft	N.A.	Felled tree, measured by Colac Otways (107 m) Shire Engineer (before 1900)
Neerim Giant	Mt Baw Baw	325 ft (100 m)	48 ft (14.7 m)	Measured by Government Surveyor. Broken top. Destroyed by fire early this century.
Girth measurements only				
Bulga Stump	Bulga South Gippsland	N. A.	111 ft (34 m)	Photographed pre-1888, later destroyed by fire.
King Edward VII	Cumberland Valley	N. A.	88 ft (27 m)	Photographed in 1904 by Nicholas Caire. Destroyed by fire.
Existing Trees - Mountain Ash *Eucalyptus regnans*				
Mueller Tree. by Also known as Furmston's Tree. (Broken at top)	Mt Monda	60 m (195ft)	19.7 m (64ft)	First found by botanist A. D. Hardy, in 1902 (then over 300 feet high). In 1935 rediscovered Furmston and remeasured at 287 feet (88 m).
Mr Jessop	Wallaby Creek Catchment	91 m (295 ft)	8.5 m (27.6 ft)	Probably Victoria's tallest living tree. Named after former Chairman, Board of Works
The Big Tree	Cumberland Tall Trees Reserve	84 m (275 ft)	6.3 m (20.5 ft)	Previously 92 m (301 ft). Top broken by wind storm in 1959. Officially still listed as Victoria's tallest tree.

Ada Tree	Powelltown Forest	76 m (247ft)	15.6 m (51ft)	Recent measurements. Currently standing
Mt Fatigue Tree	South Gippsland	45 m (150 ft)	21 m (68 ft)	Recently measured by Brett Mifsud. Broken top. Largest girth known in living *E. regnans.*
Big Tree	Melba Gully Otway Ranges	50 m (approx.)	15.5 m (50 ft)	Hollow shell and broken top. Hybrid Mountain Ash- Messmate *E. obliqua*
Big Tree gum	The Hermitage	65 m (211 ft)	14 m (46 ft)	Registered by the National Trust. (Mountain Grey Gum) (Black Spur) Very large for a grey :-*E. cypellocarpa*
Bellamy Tree Errinundra vicinity	Ellery Creek	50 m (162 ft)	15.4 m (50 ft)`	Recently visited by Prof. Bellamy. (Broken top). Giant Messmate *E. obliqua.* (In a coup currently destined for woodchipping)
Tasmanian Trees				
Not named	Jacques Road (Tas) (Florentine Valley)	100 m+ (325 ft)	N.A.	Recently reported stand of trees. To be confirmed.
Big Tree	Styx Valley Tasmania	92 m (300 ft)	9 m (29 ft)	Generally recognised as Australia's tallest tree.
Geeveston Tree (Broken at top)	Geeveston Tasmania	87 m (283 ft)	21 m (68 ft)	Much visited tourist attraction. Measurements - recent.
American Trees - Present and Past				
Californian Redwood *Sequoia sempervirens*	Coastal regions	368 ft (113m)	66 ft (20m)	Fell in 1992.
Howard Libby Tree	Humbolt County California	360 ft (111 m)		Largest known tree still standing in the world.
Wellington Pine *Sequoiadendron giganteum*	Central Calif	347 ft (107m)	83 ft (26.6m)	Past specimen (Ref. Dr A.C. Carder) .
Douglas Fir *Pseudotsuga menziesii*	Oregon	400 ft (123m)	53 ft (16.4m)	Past specimen (Ref. Dr A.C. Carder)
New Zealand Trees				
Kauri	Tane Mahuta Ngahere Waipoua Forest	51 m (166 ft)	14 m (45.5 ft)	Still living, over 1200 years old. Largest living Kauri.